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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/747,968

12/29/2003

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38898-0139

9917

23577 7590 02/18/2009

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EXAMINER

JUNTIMA, NITTAYA

ART UNIT

PAPER NUMBER

2416

MAIL DATE

DELIVERY MODE

02/18/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/747,968	Applicant(s) OULD-BRAHIM, HAMID	
	Examiner NITTAYA JUNTIMA	Art Unit 2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/18/09.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-28 is/are rejected.
- 7) ☒ Claim(s) 29-34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. This action is in response to the Amendment filed on 11/18/2008.
2. Claims 15-34 are pending (claims 1-14 were cancelled).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 15-20** are rejected under 35 U.S.C. 102(e) as being anticipated by Chu (US 2004/0255028 A1).

Regarding **claim 15**, as shown in Fig. 3, Chu teaches a network comprising:

A backbone (core network 320).

At least two provider edge devices (other PEs 308 that receive the advertised routes from a transmitting PE 308) connected to and working with said backbone (paragraph 0046).

Layer-1 VPN information (VPN information received at a physical level by other PEs 308) and layer-2 VPN information (route advertisements including RTs describing VPN components in) processed by one of said at least two provider edge devices (VPN information

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received at a physical level and RTs in route advertisements must be processed by one of the other PEs 308, paragraphs 0031-0033 and 0046).

A layer-2 provider edge device (a PE 308 that advertises its routes to other PEs) attached to said one of said at least two provider edge devices (other PEs), said layer-2 provider edge device configured to advertise said layer-2 VPN information to said one of said at least two provider edge devices (paragraph 0046).

Wherein said one of said at least two provider edge devices is configured to use a discovery mechanism for distributing said layer-2 VPN information (discovery mechanism is not defined, therefore reads on a determination made by the other 308 that receives the route advertisements on whether the route should be added to the VRF routing table based on the route targets, RTs, and if a determination is positive, the other PE 308 adds the route to the VRF table, paragraph 0046).

Regarding **claim 16**, it is inherent in Chu that said at least two provider edge devices (other PEs 308, Fig. 3 that receive the advertised routes from a transmitting PE 308) are GVPN-based as PEs 308 connected to CEs via frame relay and use BGP for route advertisements, paragraphs 0099 and 0102.

Regarding **claim 17**, Chu teaches that said at least two provider edge devices (other PEs in Fig. 3, paragraph 0046) are a part of a network of a first service provider (paragraph 0034).

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Regarding **claim 18**, Chu also teaches a second service provider (owner of the VPN site) having its own network, said second service provider being a customer of said first service provider (paragraphs 0033-0034).

Regarding **claim 19**, it is inherent in Chu that both layer-1 VPN auto-discovery (not defined, reads on heartbeat or keep-alive messages sent among PEs 308, Fig. 3 at a physical level) and layer-2 VPN auto-discovery (not defined, reads on route advertisements sent among PEs 308, Fig. 3) are carried out within said network of the first service provider (paragraphs 0034 and 0046).

Regarding **claim 20**, Chu also teaches that said backbone includes a portion of the Internet (paragraphs 0034 and 0038).

5. **Claims 27 and 28** are rejected under 35 U.S.C. 102(e) as being anticipated by an art of record, Casey (US 2003/0142674 A1).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

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Regarding **claim 27**, As shown in Fig. 3, Casey teaches a method for distributing layer-2 VPN information comprising the steps of:

At a first layer-1 provider edge device (Core PE 110):

receiving layer-2 VPN information and distributing said layer-2 VPN information to a second layer-1 provider edge device (Core PE 114) using BGP sessions and a discovery mechanism (BGP sessions and a discovery mechanism of a layer-1 provider edge device such as Core-PE 110 must be established in order for layer-2 VPN information to be transmitted from Core-PE 110 to Core-PE 114 when site#1 of customer A communicates with site# 2 of customer A, paragraphs 0023-0026, 0031, 0033-0037, 0056-0059).

At said second layer-1 provider edge device (Core PE 114, Fig. 2):

passing said layer-2 VPN information to an attached layer-2 provider edge device (Edge-PE 126, see Fig. 3 and paragraph 0033).

Regarding **claim 28**, Casey further teaches receiving advertising (advertising not further defined, reads on VPN-ID advertisement, paragraph 0057).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. **Claims 21-26** are provisionally rejected under 35 U.S.C. 103(a) as being obvious over copending Application No. 10/265,621 which is an art of record, Casey (US 2003/0142674 A1) and has a common assignee with the instant application in view of another art of record, “*BGP/MPLS VPNs*” by E. Rosen (hereinafter “Rosen”).

Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e) if published or patented. This provisional rejection under 35 U.S.C. 103(a) is based upon a presumption of future publication or patenting of the conflicting application. This provisional rejection might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the inventor of this application and is thus not the invention “by another,” or by a showing of a date of invention for the instant application prior to the effective U.S. filing date of the copending application under 37 CFR 1.131. This rejection might also be overcome by showing that the copending application is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding **claim 21**, as shown in Fig. 2, Casey teaches a network comprising:

A first provider edge device (Core PE 110) in a first carrier network (Core PEs 110, 112, 114 and MPLS Core 100 constitute a first carrier network which must be employed by a layer-1 VPN service provider, paragraphs 0025-0029), said first carrier network employed by a layer-1 VPN service provider.

A second provider edge device (Edge PE 120) in a second carrier network (SETs 130, 184, 186, and Edge PEs 120, 124, 126 constitute a second carrier network which must be employed by different service provider at layer-2, paragraphs 0025-0029), said second carrier network employed by a different service provider, wherein said layer-2 VPN information has been created within said second carrier network (a layer-2 VPN information reads on a set of addresses which are at the SETs 130, 184, 186 and Edge PEs 120, 124, 126 sites, paragraphs 0023, 0032, 0059).

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However, Casey does not explicitly teach said second provider edge device configured to employ a BGP session to transmit layer-2 VPN information to said first provider edge device.

In an analogous network in which PEs (equivalent to Core PEs in layer-1 VPN) learn routes from CEs (equivalent to Edge PEs in layer-2 VPN), Rosen teaches that a BGP session is used for transmitting the set of address prefixes at CE router's site or attributes of routes from CE to PE (equivalent to transmitting layer-2 VPN information from a second carrier network to a first carrier network using a BGP session by the second provider edge device). See pages 16-18.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the teaching of Casey to incorporate the concept of using a BGP to transmit information between two different levels of edge routers such that a BGP session would be used by the second provider edge device for transmitting said layer-2 VPN information from said second carrier to said first carrier network as claimed. The suggestion/motivation to do so would have been to pass routing information between systems run by different administrations using BGP as suggested by Rosen (page 17, item 4b).

Regarding **claims 22 and 23**, Casey teaches that layer-1 VPN auto-discovery is carried out within said first carrier network (paragraph 0057), however, the combined teaching of Casey and Rosen does not explicitly teach that said first carrier network is configured to execute an auto-discovery mechanism for said second carrier network, and said first provider edge device is configured to carry out, within said first carrier network, layer-2 VPN auto-discovery.

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However, similar to layer-1 VPN auto-discovery, an official notice is taken that it is well known in the art to use layer-2 VPN auto-discovery mechanism for a carrier network to enable network devices to learn about VPN routing information and one another.

Therefore, based on the connectivity of customer A as shown in Fig. 2 of Casey which has three sites physically connected to three different SETs and Edge-PEs in a distributed manner (all of which constitute the second carrier network) through a core network 100 belonging to first carrier network, it would have then been obvious to one skilled in the art at the time invention was made to carry out an auto-discovery mechanism for said second carrier network through said first carrier network. The suggestion/motivation to do so would have been to enable different SETs and Edge-PEs that are physically connected to one another through first carrier network in a distributed manner to learn about VPN routing information and one another.

Regarding **claim 24**, as shown in Fig. 2, Casey teaches a third provider edge device (112) in said first carrier network wherein a backbone separates said first provider edge device (110) and said third provider edge device (112).

Regarding **claim 25**, as shown in Fig. 2, Casey teaches that said at least two provider edge devices are layer-1, and said backbone (MPLS 100, paragraph 0024). However, the combined teaching of Casey and Rosen does not explicitly teach that the backbone includes a portion of the Internet. However, an official notice is taken that it is well known in the art that a core MPLS may include a portion of Internet to provide data transmission at a minimum cost since both MPLS and Internet commonly use IP protocol for data transmission. Therefore, it

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would have been obvious to one skilled in the art at the time the invention was made to further modify the combined teaching of Casey and Rosen such that the backbone would include a portion of the Internet in order to provide data transmission at a minimum cost.

Regarding **claim 26**, as shown in Fig. 2, Casey teaches that said second provider edge device (Edge-PE 120 must be layer-2 in order to communicate with SET 130) is a layer-2 VPN-based provider edge device (see paragraphs 0023 and 0025).

Allowable Subject Matter

8. **Claims 29-34** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9. Applicant's arguments filed on 11/18/2008 have been fully considered but they are not persuasive.

A. In the Remarks on page 7, the applicant argues that the PE 308 in Chu does not distribute layer-2 VPN information as required by claim 15. Instead, the PE 308 distributes layer-3 VPN information because the use of BGP and VPN routing-forwarding (VRF) tables allows one to identify the VPNs to which the PEs belong in Chu as layer-3 VPNs.

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In response, the Examiner respectfully disagrees. Note that layer-2 VPN information is not further defined, therefore, it reads on Chu's *Route Targets (RTs)* contained in the route advertisement that is used to describe *VPN components* (paragraph 0046) which include customer sites that are connected to the PE via *layer 2 connections* (paragraphs 0051-0053 and 0032 and Figs. 5 and 6). Therefore, the claimed "distributing said layer-2 VPN information" as required by claim 15 is met.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NITTAYA JUNTIMA whose telephone number is (571)272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

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11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571.272.3174. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin C. Harper/
Primary Examiner, Art Unit 2416

/Nittaya Juntima/
Examiner, Art Unit 2416
2/14/2009